

WHAT IS CLAIMED IS:

1. An apparatus for controlling ignition timing during a shift in a vehicular automatic transmission, comprising:

5 an ignition timing controller that controls an ignition timing retard amount;

a basic retard calculator that calculates a basic retard amount required to temporarily reduce an input torque of an automatic transmission provided with the controller;

10 a detector that detects an engine retard amount of an ignition timing successively required by engine conditions ;

a determinator that determines a retard correction value based on a shift mode of the automatic transmission and an input torque related value of the automatic transmission; and

15 a corrector that corrects the ignition timing retard amount of the controller based on the retard correction value determined by the determinator, the basic retard amount, and the engine retard amount.

20 2. The apparatus according to claim 1, wherein the basic retard amount is a value having a preset relationship with the input torque related value and a vehicle speed.

25 3. The apparatus according to claim 1, wherein the engine retard amount is a value determined according to an engine speed in order to suppress knocking of the engine.

4. The apparatus according to claim 1, wherein the input torque related value is a vehicle speed.

30 5. The apparatus according to claim 1, wherein the retard correction value is a value having a preset relationship with the shift mode of the automatic transmission and the input torque related value.

6. The apparatus according to claim 1, wherein the retard correction value is less than 1.

7. The apparatus according to claim 1, wherein the corrector 5 corrects the ignition timing retard amount by multiplying the retard correction value by the engine retard amount.

8. The apparatus according to claim 1, wherein the ignition timing retard amount to be corrected is related to the basic retard amount, the engine retard amount, and the retard correction value according to a relational expression. 10

9. A method for controlling ignition timing during a shift in a vehicular automatic transmission, comprising the steps of:

determining a basic retard amount required to temporarily reduce 15 an input torque of an automatic transmission provided with a controller that controls an ignition timing retard amount;

determining an engine retard amount which is a retard amount of an ignition timing successively required by engine conditions ;

determining a retard correction value based on a shift mode of the 20 automatic transmission and an input torque related value of the automatic transmission;

calculating an ignition timing retard amount from the basic retard amount, the engine retard amount, and the retard correction value; and

retarding the ignition timing of the engine based on the calculated 25 ignition timing retard amount.

10. The control method according to claim 9, wherein the basic retard amount is a value having a preset relationship with the input torque related value and a vehicle speed.

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11. The control method according to claim 9, wherein the engine retard amount is a value determined according to an engine speed in order to suppress knocking of the engine.

12. The control method according to claim 9, wherein the input torque related value is a vehicle speed.

13. The control method according to claim 9, wherein the retard 5 correction value is a value having a preset relationship with the shift mode of the automatic transmission and the input torque related value.

14. The control method according to claim 9, wherein the retard correction value is less than 1.

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15. The control method according to claim 9, wherein the ignition timing retard amount is calculated by multiplying the engine retard amount by the retard correction value.

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16. The control method according to claim 9, wherein the ignition timing retard amount is related to the basic retard amount, the engine retard amount, and the retard correction value.